

DNA2404

Digital Network 4-CH Power Amplifier DNA2404CL / DNA2404DL / DNA2404CH / DNA2404DH



General Description

The DNA2404 series of amplifiers are an integral part of the IED GLOBALCOM® Communications System, allowing a few audio zones to be added where necessary when a full 16-zone T9160 amplifier frame is not required. The amplifiers feature either CobraNet® or Audinate Dante™ digital audio input and four channels of 600 watt amplification. The DNA2404 amplifiers are controlled with network commands for selecting input routing and configuring EQ, output levels, sound masking (CobraNet® versions only), and ambient noise level compensation. Amplifiers may be controlled by a stand-alone GLOBALCOM® configuration utility or through the GLOBALCOM® System Management Center.

The internal amplifier cards are Class D (switching mode) dual channel 600W amplifiers into the rated loads (70.7-Volts or 100-Volts).

Class D operation, combined with an integral switching mode power supply, offers many advantages, and the unique IED design makes full use of these benefits. They include higher efficiency, increased reliability, improved performance, and lower operating cost. Switching mode operation combined with high voltage power MOSFET devices make it possible to eliminate the heavy, costly, bulky transformers. IED's design is stable under all load conditions (phase angles of 0 to 360 degrees). The amplifier card has 34dB of gain from its analog input to the loudspeaker output. Attenuation is handled ahead of the power amplifier by DSP controls through software.

Inputs are provided for connecting up to eight (8) 540S ambient noise sensors (2 sensors for each output channel). This allows the output of each channel to be automatically adjusted in real time based on the measured ambient noise level in the zone.

The power amplifier has built-in voltage limiting to protect the loudspeakers being driven. In addition, a temperature sensor on the heatsink will annunciate a trouble condition if an amplifier becomes too hot due to cooling fan failure to protect the electronics.

The DNA2404 series amplifiers feature LED indicators for power, audio signals and fault status. A Form C relay is also included that will indicate that a fault is present.

The DNA2404 amplifiers provide 600-watts per channel in either 70.7-volt or 100-volt transformer-distributed loudspeaker systems. Models DNA2404CL and DNA2404CH utilize CobraNet® for digital audio while models DNA2404DL and DNA2404DH utilize Audinate Dante™ for digital audio transmissions. Models DNA2404CL and DNA2404DL operate from a 120 VAC power source and the DNA2404CH and DNA2404DH models operate from a 240 VAC power source.

Models DNA2404CL and DNA2404DL can be used in conjunction with a GLOBALCOM® Announcement Controller for sound masking applications. The sound masking functionality can be enabled and controlled on a per channel basis. Each of the four (4) output channels has eighteen (18) bands of dedicated 1/3 octave filter sets. Sound masking can be layered on top of background music (BGM) and/or paging allowing for a complete paging, masking, BGM solution.

Features

- Supports Audinate Dante™ or CobraNet® digital audio inputs (depending on model)
- Compatible with IED GLOBALCOM® systems and 3rd party Dante™ or CobraNet® devices
- Provides redundant Ethernet ports
- 7-band parametric EQ and a high-pass and low-pass filter per channel
- Output audio monitoring
- Four 600-watt amplifier output channels
- 70.7-Volt or 100-Volt output models available
- LED indicators for power, audio signals and faults
- Built-in supervision of amplifier cards and loudspeaker lines
- Fault reports and amplifier status available over Ethernet using standard SNMP protocol
- Supports independent background music for all channels with automatic ducking when paging audio is present
- Two inputs for ambient noise sensors for each amplifier output channel
- ETL Safety Listed - DNA2404CL(DL) listed to UL1711 which is required for UL2572 Mass Notification Systems
- Can be used on Class A, B or AB Loudspeaker Circuits

Specifications

Part Numbers	DNA2404CL / DNA2404DL DNA2404CH / DNA2404DH
Capacities:	
Max. Number of Audio Inputs (via CobraNet®)	4 BGM / 4 Program
Number of Amplifier Outputs	4
Connectors:	
Ethernet (2)	Control and Digital Audio (100 Mbps)
Speaker (2)	4-pin Phoenix (2ch per block)
Fault Relay (1)	3-pin Phoenix, 3.81mm spacing
Ambient Sensors (8)	3-pin Phoenix, 3.81mm spacing
AC Power	
DNA2404CL / DNA2404DL (120VAC)	Volex 17504
DNA2404CH / DNA2404DH (240VAC)	Volex 17850
Controls and Indicators:	
AC Power	Rear panel switch
Power On (2, 1 per internal card)	Green LED
Audio Present/Clipping (4, 1 per channel)	Green / Yellow LED
Card Fault (2, 1 per internal card)	Yellow LED
Temperature Fault (2, 1 per internal card)	Yellow LED
Ground Fault (4, 1 per channel)	Yellow LED
Fan Fault (2, 1 per fan)	Yellow LED
AC Power Requirements:	
DNA2404CL / DL	
Quiescent Power	95 Watts
Full Power (all channels driven)	1100 Watts Max
Speech/Voice Announcement (all channels driven)	465 Watts
Power Factor	0.76
DNA2404CH / DH	
Quiescent Power	104 Watts
Full Power (all channels driven)	1000 Watts Max
1/8 Speech/Voice Announcement (all channels driven)	530 Watts
Power Factor	0.70

Electrical, Analog

CL & DL models at 120VAC CH & DH models at 240VAC

Power Output (per channel)

DNA2404CL /DL (RL=8 Ω)	600 W (70.7V)
DNA2404CH / DH (RL=16 Ω)	600 W (100V)

Efficiency

Power Output = 600 W	80%
1/8 Power Output = 75 W	64%

Output Clipping Level:

DNA2404CL / DL	70 V RMS
DNA2404CH / DH	100 V RMS

Frequency Response:

PO = 50 W, 20 Hz - 20 kHz	± 1 dB
Power Bandwidth	20 Hz – 20 kHz, +/-3 dB

Signal-to-Noise Ratio:

Unweighted, 20 Hz – 20 kHz ref	> 85 dB
Total Harmonic Distortion, THD	< 0.2% @ 2 kHz

PO = 200 W

Output Impedance, ZO:

DNA2404CL / DL	0.67 ohms
DNA2404CH / DH	0.6 ohms

Output Loading:

20 Hz – 20 kHz	Stable for any load 0Ω to ∞
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Fault Relay

Nominal switching capacity	1A 30 V DC, 0.3A 125 V AC (resistive load)
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Max. switching power

30 W (DC), 37.5 V A (AC) (resistive load)

Max. switching voltage

110 V DC @ 0.27A, 125 V AC @ 0.3A

Mechanical

Dimensions

Width (with rack-mount ears)	19" (48.3 cm)
Height	3.5" (8.9 cm)
Depth	17" (43.2 cm)

Note: For proper fan operation add a minimum of (5.1 cm) 2" clearance.

Weight	19.2 lb (8.7 kg)
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Environmental Specifications

Operating Temperature Range	+32°F – +104°F (0°C – +40°C)
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Applicable for typical voice paging and background music applications.

Storage Temperature Range	–40°F – +158°F (–40°C – +70°C)
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Compliance

FCC Part15, UL60065, CAN/CSA C22.2 No. 60065, IEC 60065, EN 60065, CB Certificate.

DNA2404CL and DNA2404DL are also UL1711 listed.